UNUSUAL NESTING HABITATS OF THREE BIRD SPECIES IN RONDEAU PROVINCIAL PARK, ONTARIO

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Rondeau Provincial Park in Kent County, Ontario, consists of a total area of 11,450 acres. About 5000 acres consists of a triangular peninsula with its base and sides along the shores of Lake Erie and its apex about six miles to the north. The remaining 6450 acres consist of buttonbush, cattail, a phragmites marsh, and the open waters of Rondeau Bay. The larger portion of the 5000-acre land area consists of an unusual distribution of mature beech-maple forest transected by a number of parallel, narrow, tree-filled sloughs (Fig. 1). These sloughs and higher ridges represent successive old beach lines, which were formed when Lake Erie was higher than at present. Running parallel with these sloughs are old, narrow roads, over which maple sap was hauled in the past.

Many of the larger broad-leaved trees in Rondeau Park, such as beeches, maples, and tulip poplars, are up to four feet in diameter as this portion of the park was never systematically logged. Pines, walnuts, and other valuable trees were logged in the 1800's, but since the park was set aside in 1894 little but salvage cutting has been permitted, according to Richard Ussher, present naturalist in the park. Apparently, the most recent cutting has been largely in the sloughs where Dutch elm disease has killed many of the elms. Within recent years the old access roads have been allowed to grow up in small trees and shrubs, so that the forest canopy is closing over them.

I carried out studies both during and after the nesting season in the park from the fall of 1952 through the nesting season in 1954. A total of about 150 hours during 22 days were occupied with finding, tagging, and collecting nests. The longest continuous period spent in the park was from 15 June to 27 June 1954, when Dr. William B. Stapp and I worked from dawn to dusk in all parts of the land area, including the buttonbush and other types of marshes. During this period 242 active nests of 24 species were found and studied.

In low trees with canopies of wild grapes along these roads and into the adjacent sloughs and forest nest the Catbird (*Dumetella carolinensis*) and the Yellow Warbler (*Dendroica petechia*). In these same habitats as associates and extending into the understory of the thick forest nest such species as, in order of abundance, the American Redstart (*Setophaga ruticilla*), the Wood Thrush (*Hylocichla mustelina*), the Veery (*Hylocichla fuscescens*),

FIG. 1. Section of Beech-Maple Forest in Rondeau Park, Ontario.

the Prothonotary Warbler (*Protonotaria citrea*), and several less numerous species.

In this situation the Brown-headed Cowbird (*Molothrus ater*) is found in considerable abundance, parasitizing at least 10 other species. The Cowbird is more generally distributed in all types of habitats than are the Catbird and the Yellow Warbler, being found in the densest part of the beech-maple understory as well as in the narrow edge areas along the roads and sloughs. I have found no mention in the literature of these three species nesting in mature beech-maple habitats.

Although the mature beech-maple habitat for these three species differs markedly from the usual ones, several factors common to the habitats of the three species are present. These are adequate edge, density of foliage at the immediate nest site, and proximity to wet situations. I believe that low wind velocity in such a protected area is another favorable factor. I have often observed that many small birds apparently avoid building nests in shrubbery or trees along the edges of large bodies of water or other exposed situations where winds are often strong and continuous for long periods.

According to my survey, the Yellow Warbler was the most abundant nesting species in the park in 1954. A total of 207 nests of this species was found in both the smaller and larger beech-maple portion and in the button-bush marshes among the colonies of Red-winged Blackbirds (*Agelaius phoeniceus*). Table 1 shows the sites of 207 nests of this species and the

Table 1
Sites of 207 Yellow Warbler Nests in Rondeau Park

Plant Species	No. Nests	% of Total	Avg. ht. in feet	% parasitized
Wild grape (canopies)	45	22	7.4	18
Sugar maple	32	15	6.0	38
Beech	9	4	10.6	44
Gray dogwood	32	15	5.1	0
Buttonbush	9	4	5.0	0
Red raspberry	28	14	2.8	39
Meadowsweet	16	8	3.8	13
Miscellaneous (16 sp.)	36	17	5.0	25
Total	207	100	5.7	20.3

degree of Cowbird parasitism. Note that no Cowbird eggs or young were found in the 41 nests (nearly 20 per cent) with sites in gray dogwood and buttonbush. This lack of parasitism appears to be due to the presence of a number of Red-winged Blackbirds which were nesting in the same area. Bent (1953:174) states that Dr. George M. Sutton found only one parasitized nest out of 43 in Pymatuning Swamp, Pennsylvania. Sutton stated that this was due "to the protection against these parasites afforded by the Red-winged Blackbirds which would not tolerate a Cowbird anywhere about the marshes." On several occasions in recent studies of Yellow Warblers and Traill's Flycatchers I have found a very low degree or no parasitism where these birds were nesting along with Red-winged Blackbirds in the marshes.

Of the 200 Catbird nests found in the park (Table 2) 161 (80 per cent) were placed in species of trees and shrubs characteristic of the beech-maple complex. The other 20 per cent were built in trees and shrubs, including hawthorn and gray dogwood, outside the mature forest. Wild grapes, listed

Table 2
Sites of 200 Catbird Nests in Rondeau Park

Plant Species	No. Nests	% of Total	Avg. ht. in feet	% parasitized
Wild grape (canopies)	132	66	7.6	0
Beech	14	7	5.2	0
Sugar maple	9	5	7.1	0
Hawthorne	7	4	5.4	0
American hornbeam	6	3	7.3	0
Miscellaneous (13 sp.)	32	16	6.1	0
Total	200	100	7.1	0

TABLE 3

SITES OF 123 AMERICAN REDSTART NESTS IN RONDEAU PARK

Plant Species	No. Nests	% of Total	Avg. ht. in feet	% parasitized
Sugar maple	64	52	8.9	16
Beech	10	8	6.5	20
Wild grape (canopies)	15	12	9.6	0
Ashes (sp.)	8	7	6.2	0
Ironwood	4	3	10.0	50
Miscellaneous (15 sp.)	22	18	6.4	14
Total	123	100	8.2	13.8

as sites for 66 per cent of these nests, were growing as canopies on saplings of typical beech-maple forest species, mostly beech, sugar maple, and basswood. No cowbird's eggs or young were found in any Catbird nests in the park. This species is generally intolerant of interference by the parasite and normally punctures and removes the Cowbird's eggs.

The third most abundant species in the park (Table 3), and a close nesting associate of the other three, is the American Redstart. One hundred twenty-three nests of this species were found. A comparison of the vegetation in which the nests were found shows 93 nests (76 per cent) were in four species which are characteristic of beech-maple forests. This habitat is more normal for the Redstart. The lack of Cowbird parasitism in wild grape canopies and ash trees is something for which I have no explanation, in that Yellow Warblers in the same situation showed 18 per cent parasitism. However, a total parasitism for the Yellow Warbler was 20.3 per cent, while the total parasitism for the Redstart was 13.8 per cent.

DISCUSSION

The question arises as to the factors involved in the appearance of the Yellow Warbler, Catbird, and Brown-headed Cowbird in a habitat such as has been described. Richard Ussher, in detailing some of the history of the park (Judd and Speirs, 1967:167–169), states that "White-tailed deer have played a prominent part in the recent life of the park" and for a period of 30 years (1912–1942) seedlings of most species of trees and undergrowth were destroyed by deer browsing. This, of course, opened up most of the understory of the park to such species as the three in question. as did the old sugar roads and the dying of many of the trees in the sloughs. About 1,800 deer were shot in the park during this 30-year period, reducing the herd to approximately 100 head at the present time. Since 1942 much of the understory has grown back and the forest canopy has gradually closed

over the more open areas. All three species normally are found in much more open areas, and in such open areas bear about the same relationships to one another as they do in Rondeau Park.

It is probable that the Cowbird entered the region in which Rondeau Park is located at about the same time it entered much of Ohio and southern Michigan, about a 100 years ago or a little more. Mayfield (1960:145) states that in the first check-list of the birds of Ohio (1838) the Cowbird was admitted to the catalogue on somewhat doubtful authority. Further, he states that in the first check-list of the birds of Michigan for the southern portion of the state, Sager (1839) listed the Cowbird without comment, and that Fothergill's careful notes on birds seen in southern Ontario did not record the Cowbird in 24 years of field work there (1817–1840). Friedmann (1929:150) states that "deforestation has not been the only factor resulting from civilization that has been instrumental in enlarging the range of the cowbird, although it unquestionably has been the most potent one." Further, he states that "another factor synchronous with the deforestation and settling of the country was the added impetus for the cowbird to wander beyond its former limits, supplied by the presence of cattle on the newly cleared homesteads. The cowbird originally attended and followed the herds of buffalo, and possibly the antelope and other large game."

It appears probable that the Cowbird, Yellow Warbler, and Catbird actually entered the mature forest in Rondeau Park at about the same time (1912–1942) during the previously mentioned period of overbrowsing by white-tailed deer, to which the Cowbirds transferred their relationship from the cattle in the surrounding farmlands. Only very recently, as far as I can find in the literature, has the white-tailed deer been mentioned as a substrate-host of the Cowbird. McNeil (1967:37) describes having seen Cowbirds perched on the backs of deer and walking the full lengths of their backs on several occasions in 1965 and 1966 in Roscommon County, Michigan. He clinches his observation with a photograph of a Cowbird perched on the back of a white-tailed deer. In recent conversation with the naturalists in Rondeau Park they informed me that they had several times seen Cowbirds associating with deer in the park, and had seen them perched on the animals' backs on several occasions.

It will be interesting to know whether these three species (Yellow Warbler. Catbird, and Cowbird) maintain their numbers, or whether they will gradually disappear as the forest canopy covers and shades their present habitat in the future.

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NEW LIFE MEMBER

A recent addition to the roll of Life Members of the Wilson Society is Dr. Larry C. Holcomb, Associate Professor of Biology at Creighton University. Dr. Holcomb is an alumnus of Olivet College and holds two graduate degrees from Michigan State University. His scientific interests include the behavior and physiology of bird reproduction, the development of structure and behavior, and the origin of cowbird parasitism, and he has published 30 papers in ornithology and mammalogy. Dr. Holcomb is currently president of the Nebraska Ornithologists Union, and is a member of several scientific societies including the A.O.U., the Cooper Society, and the Ecological Society. He is married and has five children.

NEW LIFE MEMBER

Dr. William F. Davis, a surgeon of Ashtabula, Ohio has recently become a Life Member of the Wilson Society. Dr. Davis is a member of the A.O.U., the American Society of Mammalogists, and the Ottawa Field-Naturalists Club. His ornithological interests extend to ecology and nesting behavior, and he has published papers in these fields. He is also interested in botany and mammalogy. After graduating from Michigan State College with a major in wildlife management his interests turned to medicine and he holds an MD. degree from Ohio State University.